Cention® Forte: Clinical Investigations

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Cention Forte: novel, high-strength amalgam alternative for Class I and II restorations

In 2016, the Cention N restorative was introduced in Asian countries as an alternative to amalgam as a powder-liquid hand-mix variant. Due to the planned phase-out of amalgam in European countries, Cention N was further developed and launched in Europe in 2021 under the product name Cention Forte (in combination with Cention Primer) as a capsule delivery form. Cention Forte is tooth-coloured and has a high flexural strength of more than 100 MPa. The self-curing powder-liquid filling material with optional light curing and bioactive-ion release belongs to the alkasite material group. The patented alkaline filler releases increased amounts of hydroxide ions, during an acid attack within the oral cavity - helping to regulate pH levels. Increased release of fluoride and calcium ions also forms the basis for enamel remineralisation.

The biological safety of Cention Forte and Cention Primer has been assessed by experts, according to international and country-specific standards/guidelines and found to present no toxicological risk to patient or user.

Clinical Data

Clinical evaluation of an alkasite-based resin composite in Class I and II cavities conditioned with self-curing primer: Preliminary results up to one year. Clinicaltrials.gov: NCT04796974

Gözetici-Çil B, Ballı-Akgöl B, Üstün N, Kuşdemir M, Öztürk-Bozkurt F, Özcan M*. Department of Restorative Dentistry, Istanbul Medipol University, School of Dentistry, Istanbul, Turkey. * Center for Dental Medicine University of Zurich, Zurich, Switzerland. *Operative Dentistry (in press 2024).*

Method: 49 patients (aged 18-45) received 90 Class I or II posterior Cention Forte/Ivoclar (CF) + Cention Primer/Ivoclar (CP) restorations, which were evaluated according to FDI criteria for esthetic, functional and biological properties. Recalls took place at baseline (3-4 weeks) and after 1 year and any change in FDI scores was recorded.

Summary: All 90 restorations were evaluated at baseline and 86 (95.5%) after 1 year - as 2 patients were lost to recall. No loss of retention or tooth fracture was observed, thus the overall survival rate was 100%. One restoration was deemed clinically unacceptable (score 4) due to a small material chipping after one year, thus the overall success rate was 98.8%. Between baseline and one year, restorations were unaffected in terms of marginal adaptation, marginal discoloration, and secondary caries. All restorations were clinically acceptable in terms of esthetics at baseline and after 1 year, but colour and surface lustre changed slightly over time.

Clinical relevance: Promising results were observed for the clinical performance of CF + CP after 1 year. Minor staining and slight colour changes were noted over time but might be outweighed by advantages regarding ease of application, mechanical durability, and marginal integrity - particularly in patients at high risk for caries.

Clinical performance of an alkasite-based bioactive restorative in Class I / II cavities: A randomized controlled trial: 6 month results. Clinicaltrials.gov: NCT05748327

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Method: 59 patients with Class I/II lesions were included. Two similar teeth per patient were restored with the alkasite Cention Forte/Ivoclar (CF) and Equia Forte HT/GC (EF) a glass hybrid restorative system. Clinical evaluation via FDI criteria, was carried out at baseline (1 week) and after 6 months.

Summary: The recall rate at 6 months was 96.6%. All restorations were clinically acceptable except for 1 EF restoration with a repairable marginal defect. Clinical performance was similar for both materials regarding surface staining, marginal discoloration, anatomical form, approximal contact, post-operative hypersensitivity, and periodontal response. Slight (clinically acceptable) marginal deterioration was observed in both groups. Most EF restorations (95%) exhibited a clinically acceptable deviation in colour match, compared to just 42% of the CF restorations. The percentage of EF restorations with enamel-like surface luster (score 1) decreased from 50.6% at baseline to 14% at 6 months, mainly due to the wearing out of the glaze layer. CF restorations exhibited a slightly dull surface (score 2) more frequently than EF, at both baseline (81.4%) and after 6 months (82.5%).

Clinical relevance: The alkasite-based ion-releasing restorative and glass hybrid restorative system demonstrated comparable and successful clinical performance after 6 months' clinical service.